IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Brad A. Lovett	Group Art Unit:	1782
Serial No.:	10/588,710	Examiner:	Jacobson, Michele Lynn
Filed:	08/07/2006	Confirmation No.:	4638
Title:	AROMATIC POLYAMIDE TUBING FOR VEHICLE APPLICATIONS		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellant submits its Brief subsequent to the filing of a Notice of Appeal on July 20, 2011. As the application has previously been appealed, no fee is believed to be necessary, however, should any fees be found to be required, the Commissioner is authorized to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

Real Party in Interest

The real party in interest in this application is Cooper Technology Services, LLC.

Related Appeals and Interferences

The application was previously appealed on May 14, 2010 and a brief in support of the appeal was filed on August 9th, 2010. Prosecution was subsequently reopened by the examiner in response to the applicant's appeal brief.

Status of Claims

The application included claims 1-38. Claims 2-3, 7-9, 20, 22, and 26-30 were previously cancelled. Claims 14-19, 24-29, 21, 23-25, and 34 were withdrawn. Claims 1, 4-6, 10-13, 31-33, and 35-38 stand rejected and are appealed.

Status of Amendments

All amendments have been entered.

Summary of Claimed Subject Matter

The application includes a single independent claim, claim 1, which is summarized as follows.

As shown below, in Figure 3 from the application, independent claim 1 is directed to a vehicle tubing 14 [see page 2, lines 9-11]. The tubing 14 has an inner layer 22, which is electrically conductive and is constructed of an aromatic polyamide [see page 5, lines 15-26]. The tubing 14 also has an outer layer 24, which is adjacent to the inner layer [see page 5, lines 15-18]. The outer layer 24 is also aromatic polyamide [see page 5, lines 18-20]. The aromatic polyamide of each layer 22, 24 comprises amide groups and aromatic rings, with at least 50% of the amide groups being attached to aromatic rings [see page 5, lines 27-30].

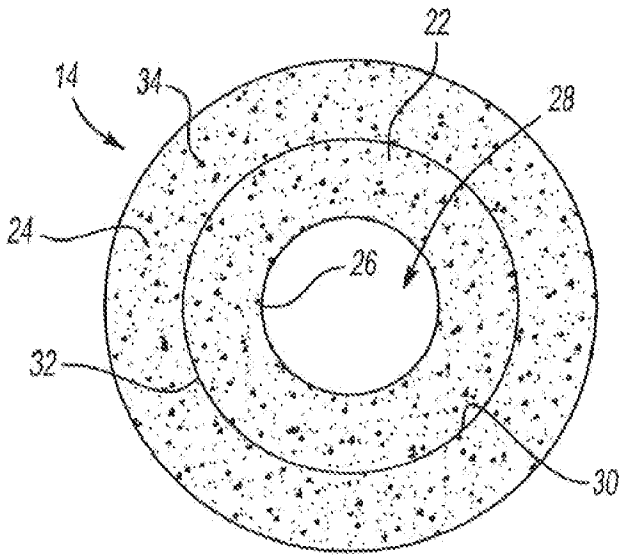

Fig-3

Grounds of Rejection to be Reviewed on Appeal

I. Whether claims 1, 4-6, 10-12, 31-33, and 35-37 were properly rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,428,866 to Jadamus (hereinafter "Jadamus") and "Encyclopedia of Polymer Science and Technology" Pallmer, R.J. ed. John Wiley & Sons, New York 2001, Vol. 3, Pgs 618-642 (Hereinafter "Pallmer").

II. Whether claims 13 and 38 were properly rejected under 35 USC §103(a) as being unpatentable over Jadamus and Pallmer in view of U.S. patent 3,538,209 to Hegler (hereinafter "Hegler").

Argument

I. Rejection of Claims 1, 4-6, 10-12, 31-33, and 35-37 under §103(a)

All Claims

Claim 1 of the present application is directed to "A vehicle tubing comprising: an inner layer of aromatic polyamide forming a tubing conduit, wherein the inner layer of aromatic

polyamide is electrically conductive; and an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings." The feature of "at least 50% of the amide groups are attached to aromatic rings" is directed to the chemical structure of the aromatic polyamides out of which the inner and outer layers are constructed.

The Supreme Court defined the standard for establishing obviousness in KSR v. Teleflex. Obviousness under *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 82 U.S.P.Q.2d 1385 (2007) requires a reason for combining the elements of the prior art in the manner claimed. The Examiner must provide an articulated reasoning with some rational underpinning to support the conclusion of obviousness, and the reasoning should be made explicit. *Id.* at 1395.

Regarding the rejection, the Examiner alleges that it is obvious to vary the quantity of aromatic polyamide present in the outer layer of Jadamus and thereby optimize barrier properties and strength. Varying the *amount* of aromatic polyamide present in the outer layer bears no connection to the percentage of amide groups attached to aromatic ring in *the chemical structure* of the aromatic polyamide itself because the percentage of amide groups attached to aromatic rings would be the same regardless of the amount of aromatic polyamide present in the outer layer. Neither Jadamus nor Pallmer disclose or teach the claimed chemical structure.

The Examiner relies on Pallmer as evidence that the percentage of amide groups attached to aromatic rings is a result effective variable. Particularly, the Examiner states that "Pallmer teaches that nylons (polyamides) containing aromatic monomers tend to have increased stiffness by virtue of the greater rigidity of the chains," citing to page 625 of Pallmer. Furthermore, the Examiner alleges that it is obvious to vary the quantity of aromatic monomers present in the polyamide and thereby optimize barrier properties and strength.

MPEP 2144 requires that, for a finding of a result effective variable, the Examiner must establish a "variable, the variation of which achieves a recognized result" (MPEP 2144.05). Furthermore, MPEP 2144 requires that the Examiner provide evidence, beyond mere assertions,

that the disclosed variable meets this definition. Pallmer fails to meet this standard. Pallmer merely discloses that the presence of aromatic monomers results in an increased stiffness compared to aliphatic nylon that does not include aromatic groups. No indication is given in Pallmer as to what effect varying the levels of amide groups attached to aromatic groups would have, or even that it is known to vary such a parameter. Therefore, Pallmer falls short of establishing a result effective variable under MPEP 2144.05.

Furthermore, the Examiner has not established, or even argued, that varying the *amount* of aromatic monomers present in the polyamide bears any connection to the percentage of amide groups attached to aromatic ring in *the chemical structure* of the aromatic polyamide. The claimed feature *explicitly* claims "at least 50% of the amide groups are attached to aromatic rings" and makes no reference to the percentage of aromatic monomers present in the polyamide. Instead, the claimed feature is directed to the chemical structure of the aromatic polyamide, and claims that within the chemical structure at least 50% of the amide groups are attached to aromatic rings.

Accordingly, the Examiner has not established *prima facie* obviousness and the rejection should be reversed.

II. Rejection of Claims 13 and 38 under §103(a)

Claims 13 and 38

Claims 13 and 38 recite the limitation found in claim 1 of "an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings." As described above in section I regarding claims 1, 4-6, 10-12, 31-33 and 35-37, the Examiner has failed to properly establish the presence of a result-effective variable in Jadamus or Pallmer, and has failed to support his purported common knowledge. The Examiner relies on the addition of Hegler solely to illustrate corrugation in the tubing. Therefore adding the teachings of Hegler to Jadamus or Pallmer does not resolve the issue noted above in Section I with regard to independent base claim 1 and Jadamus and Pallmer.

Accordingly, Jadamus and Pallmer in view of Hegler does not establish *prima facie* obviousness of claims 13 and 38, and the rejection should be reversed.

CLOSING

For the reasons set forth above, the final rejection of claims 1, 4-6, 10-12, 31-33, and 35-37 are improper and should be reversed.

Respectfully submitted,

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Dated: September 20, 2011

CLAIMS APPENDIX

1. A vehicle tubing comprising:

an inner layer of aromatic polyamide forming a tubing conduit, wherein the inner layer of aromatic polyamide is electrically conductive; and

an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings.

4. The vehicle tubing as recited in Claim 1, wherein each of the outer layer of aromatic polyamide and the inner layer of aromatic polyamide includes a layer thickness that together define a total thickness, and the thickness of the outer layer of aromatic polyamide comprises between approximately 50% and 95% of the total thickness.

5. The vehicle tubing as recited in Claim 1, including an intermediate thermoplastic layer located between the inner layer of aromatic polyamide and the outer layer of aromatic polyamide.

6. The vehicle tubing as recited in Claim 1, wherein the inner layer of aromatic polyamide includes an outer surface and the outer layer of aromatic polyamide includes an inner surface, and the outer surface of the inner layer of aromatic polyamide contacts the inner surface of the outer layer of aromatic polyamide.

10. The vehicle tubing as recited in Claim 1, wherein the aromatic polyamide of the inner layer of aromatic polyamide and the outer layer of aromatic polyamide include at least one of an impact-modifying agent, a heat-stabilizing agent, and a color pigment.

11. The vehicle tubing as recited in Claim 1, wherein only the inner layer of aromatic polyamide of the tubing includes an electrically conductive material.

12. The vehicle tubing as recited in Claim 33, wherein the electrically conductive material includes at least one of carbon powder, carbon fiber, carbon nanotubes, metal fiber, metal powder, and mixtures thereof.

13. The vehicle tubing as recited in Claim 1, wherein the outer layer of aromatic polyamide includes a corrugated outer surface and the inner layer of aromatic polyamide is non-corrugated.

14. A vehicle tubing comprising:

a tubing including a layer of aromatic polyamide defining a conduit, the layer of aromatic polyamide including a corrugated outer surface section.

15. The vehicle tubing as recited in Claim 34, wherein the inner layer of aromatic polyamide includes a corrugated inner surface section and a corrugated outer surface section that corresponds to the corrugated outer surface section of the outer layer of aromatic polyamide.

16. The vehicle tubing as recited in Claim 34, wherein the inner layer of aromatic polyamide includes a non-corrugated inner surface section and a corrugated outer surface section that corresponds to the corrugated outer surface section of the outer layer of aromatic polyamide.

17. The vehicle tubing as recited in Claim 34, wherein the tubing includes a length, the inner layer of aromatic polyamide has a first wall thickness and the outer layer of aromatic polyamide has a second wall thickness, and one of the first wall thickness and the second wall thickness is essentially constant over the length of the tubing and the other of the first wall thickness and the second wall thickness changes over the length of the tubing.

18. The vehicle tubing as recited in Claim 34, wherein the outer layer of aromatic polyamide includes a non-corrugated outer surface section adjacent to the corrugated outer surface section along a length of the tubing.

19. The vehicle tubing as recited in Claim 18, further including alternating non-corrugated outer surface sections and corrugated outer surface sections along the length of the tubing.

21. A method of resisting permeation of a fluid through a tubing wall comprising the steps of:

extruding an inner layer of aromatic polyamide to form a tubing conduit;

extruding an outer layer of aromatic polyamide coaxially with the inner layer of aromatic polyamide; and

bonding the outer layer of aromatic polyamide to the inner layer of aromatic polyamide.

23. The method as recited in Claim 21, including the step of bonding the outer layer of aromatic polyamide to the inner layer of aromatic polyamide with an intermediate thermoplastic layer located there between.

24. The method as recited in Claim 21, including the step of forming a corrugated outer surface section on the outer layer of aromatic polyamide.

25. The method as recited in Claim 21, including the step of adding at least one of carbon powder, carbon fiber, carbon nanotubes, metal fiber, metal powder, heat-stabilizing agent, impact-modifying agent, and mixtures thereof to the aromatic polyamide used to extrude the inner layer of aromatic polyamide.

31. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polyvinylidene fluoride, ethylene chlorotrifluoroethylene, ethylene tetrafluoroethylene, polyamide, modified polyamide, polyolefin, ethylene vinyl alcohol, polyester, polybutylene naphthalate, or combinations thereof.

32. The vehicle tubing as recited in Claim 10, wherein the aromatic polyamide of inner layer of aromatic polyamide and the outer layer of aromatic polyamide includes an impact-modifying agent and a heat-stabilizing agent.

33. The vehicle tubing as recited in Claim 11, wherein the inner layer of aromatic polyamide has an electric surface resistivity between approximately 10^2 and 10^7 ohms/square.

34. The vehicle tubing as recited in claim 14, wherein the layer of aromatic polyamide comprises an inner layer of aromatic polyamide, and the tubing further comprises an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide.

35. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes ethylene chlorotrifluoroethylene.

36. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polyamide.

37. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polybutylene naphthalate.

38. The vehicle tubing as recited in claim 13, wherein the outer layer of aromatic polyamide includes alternating corrugated and non-corrugated sections.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.